

January 14, 1994



WHO Collaborating Center for
Research, Training, and Eradication of Dracunculiasis

GUINEA WORM WRAP-UP #42

Addressees

[bar showing time left until December 1995]

EDITORIAL:

Two years to Target 1995



We enter the final two years before the target date for eradicating dracunculiasis (December 1995) with many accomplishments. The number of cases reported globally has been reduced from 892,000 in 1989, to an estimated 170,000 in 1993: a reduction of 81% in four years! With only 2 cases in Pakistan, less than 800 cases in India, and a possible small focus in Yemen, Asia is already very close to eradication. Ghana and Nigeria, formerly the two most highly endemic countries, have reduced their numbers of reported cases by 90% in the four years between 1989 and 1993. During 1993, the eradication programs of Chad, Cote d'Ivoire, Mali, Mauritania, Togo, and Uganda all advanced greatly from their positions one year ago. Endemic countries in East Africa, the region of greatest concern, were energized in August by the visit of former U.S. President and Mrs. Jimmy Carter. Overall, at least one intervention is in place in at least 82% of the 21,000 known endemic villages remaining (Figures 1, 2) and, for the first time, all endemic countries are actively engaged in the eradication campaign (Table 1). In our (endemic countries and donors) favor is the increased momentum, increased mobilization of donors and endemic countries, and increased knowledge about how to eradicate Guinea worm disease.

What matters most now, however, is how far we still have to go, not how far we have come. 1994 is the "make or break" year for dracunculiasis eradication. Working against us now are the short time remaining and the shortage of funds available to finish the job. Countries need to put all appropriate interventions (trained village-based health workers, health education, cloth filters, water supply, Abate) and monthly reporting in place in all endemic villages as soon as possible in 1994. Programs must move quickly to start interventions in newly-endemic villages, and to disengage from villages that are no longer endemic. And by the end of 1994, all endemic countries need to have begun nationwide "case containment". Those are our challenges for 1994. Donors and endemic countries should focus on whatever actions are necessary to achieve those key interim goals.

Figure 1

STATUS OF INTERVENTIONS: DECEMBER 1993

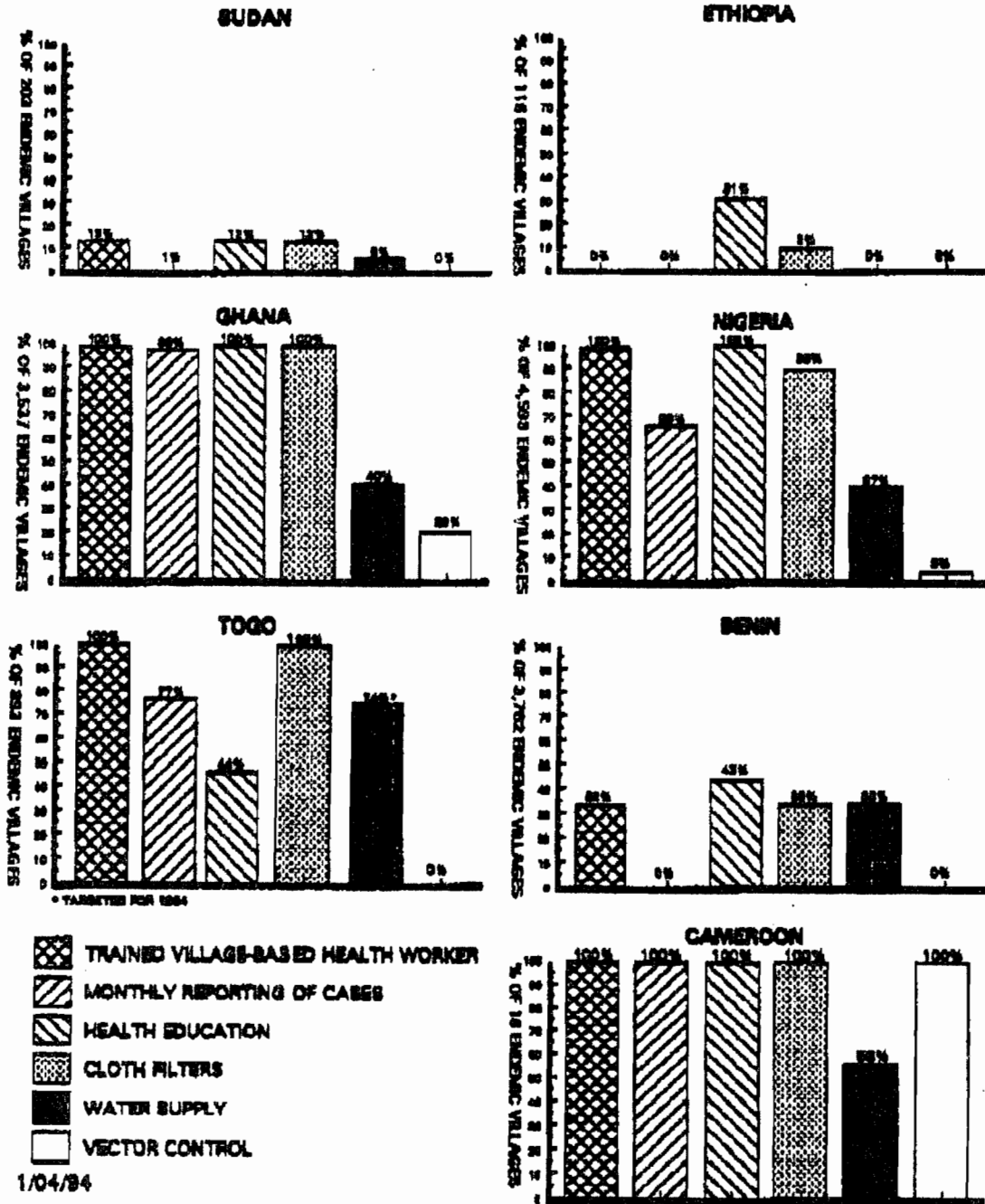


Figure 1 (continued)

STATUS OF INTERVENTIONS: DECEMBER 1993

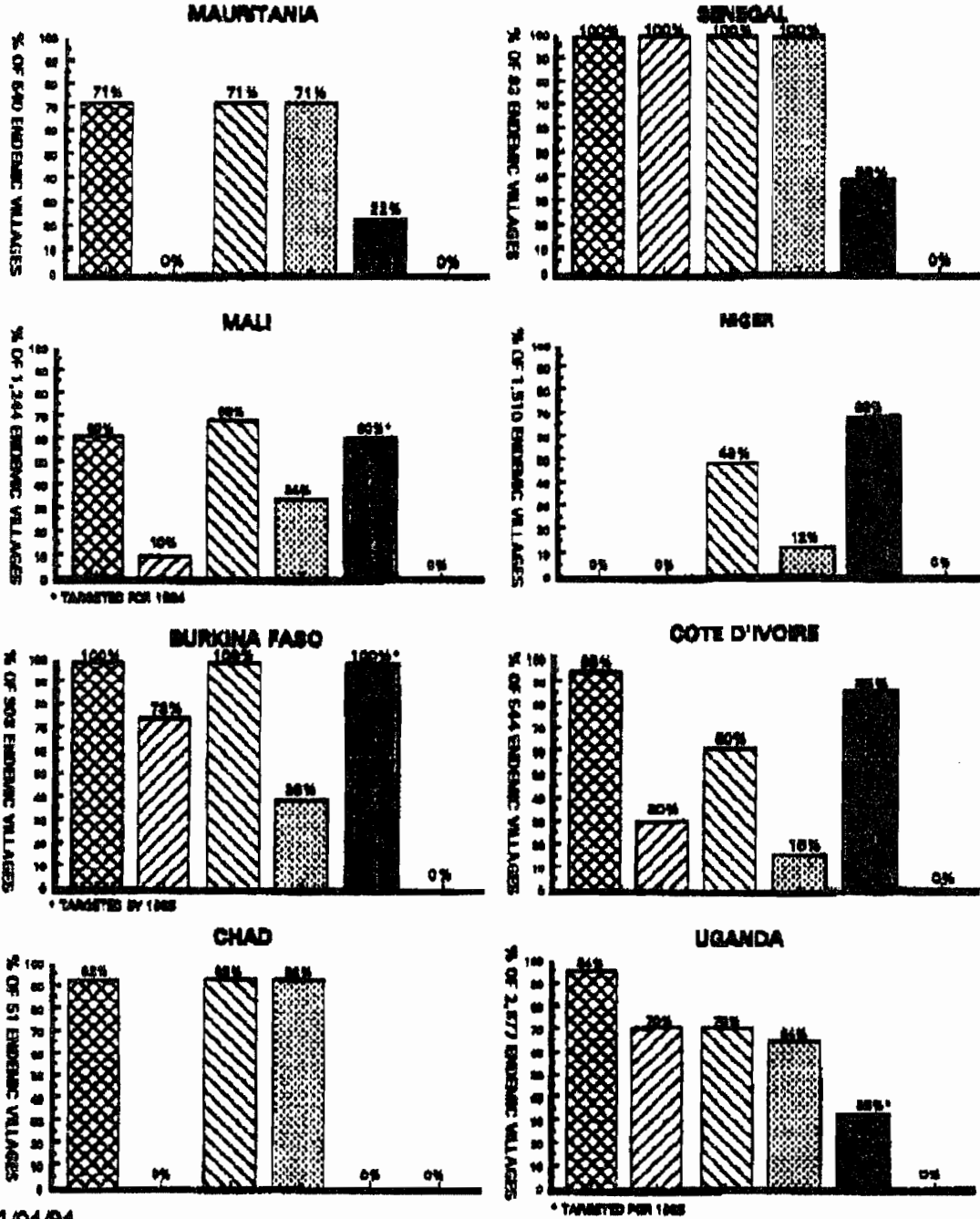
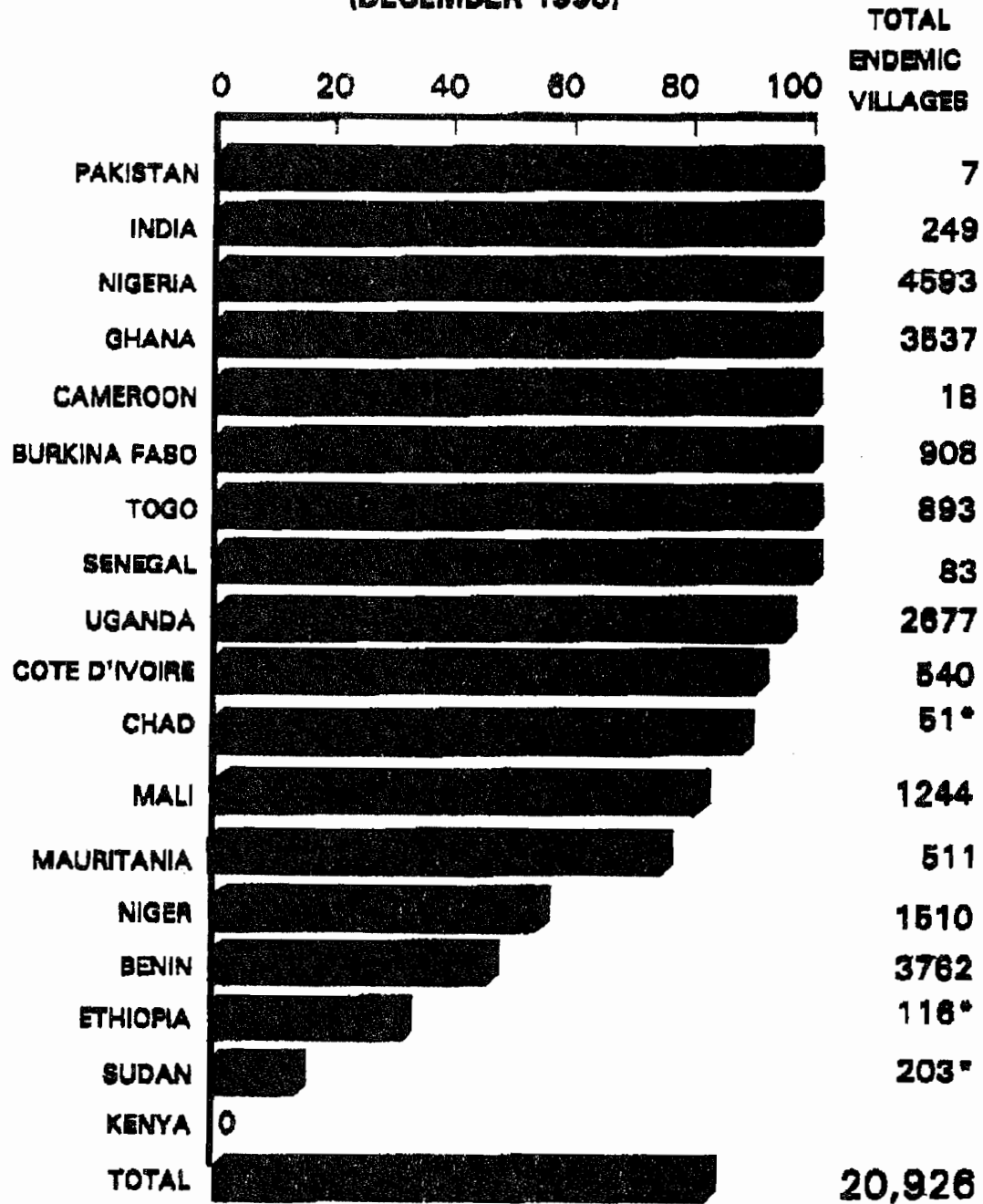


Figure 2

**PERCENTAGE OF VILLAGES WITH ENDEMIC DRACUNCULIASIS
HAVING ONE OR MORE CONTROL INTERVENTIONS
(DECEMBER 1993)**



* Provisional

Table 1 MONTHLY REPORTING OF CASE OF DRACUNCULIASIS IN 1993 (UPDATE: DECEMBER 1993)

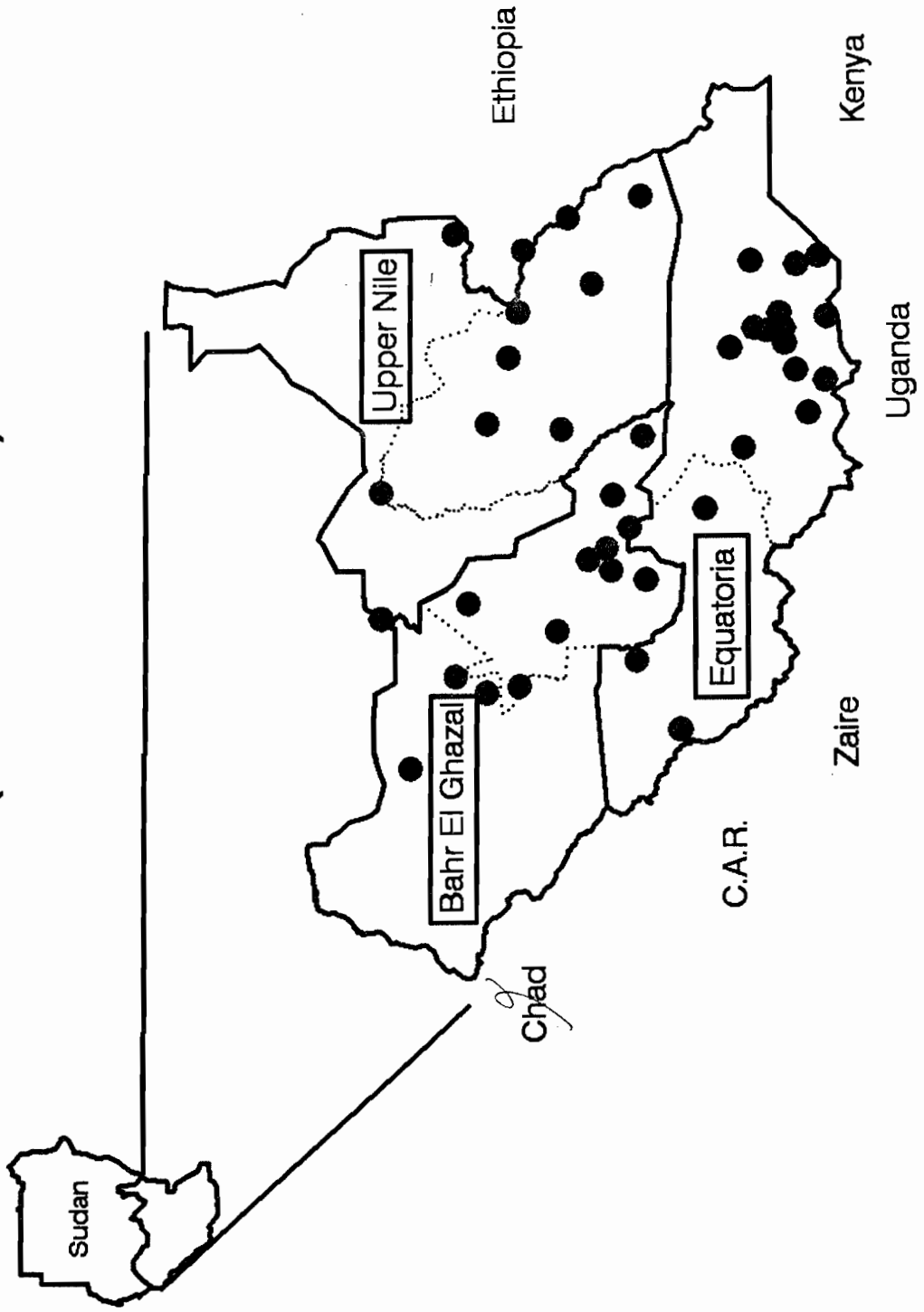
COUNTRY	ANNUAL INCIDENCE (YEAR)	NUMBER OF CASES REPORTED DURING 1993												TOTAL*		
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC			
IBERIA	180,100 (1993)	7010	1000	6000	8000	1070	7000	9000	9000	1011	1000					
GUINEA	120,300 (1991)	9000	4000	1700	1000	2000	4000	4000	2010	2000	2000	1100				
GUINEA-BISSAU	60,100 (1990)	0	0	100	0	0	70	1000	0	0	0					
SENEGAL	87,000 (1990)	0	0	100												
SIERRA LEONE	80,000 (1990)	0	0	0	1000	1000	1000	0	0	0	0	0	1000			
LIBERIA	61,000 (1991)															10001
GUINEA-BISSAU	60,300 (1991)				0	1000	0	0	0	1000	0	0	0			
SIERRA LEONE	17,700 (1991)										1100	0				0770
MAURITANIA	0,000 (1990)															1000
TOGO	0,000 (1990)	1000	1000	0	0	0	0	0	0	0	0					
SUDAN	0,000 (1993)					100	100	0	0	0	0					
SENEGAL	1,000 (1991)						100	0	0	0	0					
SIERRA LEONE	1,000 (1990)	0	0	0	0	0	0									000
ETHIOPIA	0,000 (1990)															
CHAD	1000 (1990)															000
CAMBODIA	100 (1990)	0	0	0	0	0	0	0	0	0	0	0	0			01
TAJIKISTAN	0 (1992)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
INDIA										0						00
TOTAL																

* PROVISIONAL RESULTS, NATIONAL SEARCH UNDERWAY
 * INCOMPLETE / PROVISIONAL REPORT

**SUDAN:
 SEARCHING IN THE SOUTH**

The special challenge posed to dracunculiasis eradication by the on-going civil disturbances in the Sudan are well recognized. We reported in the previous issue of Guinea Worm Wrap-Up (#41) on the progress being made nonetheless as a result of the vigorous actions by the National Program Coordinator for the program in Sudan, Dr. Sirraq el-Ghizouli, and his assistant Dr. Isam Galander, including in parts of the three southern states of Bahr El-Ghazal, Upper Nile, and Equatoria. Their search of Equatoria found 306 cases in 16 endemic villages. Cloth filters have been distributed in all 16 villages. UNICEF and Operation Lifeline Sudan (OLS) also report additional progress in extending systematic identification of endemic villages and implementation of control measures to other uncontested endemic areas of southern Sudan. A map showing the combined epidemiological results from all available recent information for the three states is given in Figure 3. Thus far, approximately 1,584 cases have been reported by all groups in 94 affected villages in the three states. UNICEF/OLS is working in a coordinated approach with several non-governmental organizations, all of which recognize that dracunculiasis "is a major public health problem in south Sudan". UNICEF/OLS will provide \$300,00 for these activities. Global 2000 is providing 46,000 square yards of nylon filter material (donated by DuPont and Precision Fabrics Group) and 4,800 yards of "Faso Fani cloth" to be used in an effort to reach affected villages before the rains begin in May 1994.

**VILLAGES WITH KNOWN ENDEMIC DRACUNCULIASIS IN
BAHR EL GHAZAL, EQUATORIA AND UPPER NILE STATES, SUDAN
(DECEMBER 1993)**



**CHAD:
INTERVENTIONS BEGIN, SEARCH BEING COMPLETED**



In a welcome burst of year-end activity, the Chadian National Program Coordinator, Dr. Hinn-Dandje Gagde and his national colleagues, with the assistance of the associate director of the U.S. Peace Corps in Chad, Mr. Raymond Stewart, and Global 2000 consultant Mr. Harry Godfrey, in December began interventions (trained village-based health worker, health education, distribution of cloth filters) in all 47 known endemic villages in Mayo-Kebbi Prefecture, and began searches in three of the six prefectures that remain to be searched. Provisional results are that 4 endemic villages (288 cases) have been found in Guera Prefecture, and 5 endemic villages (25 cases) in Logon Occidental. Plans are to complete the searches by the end of February 1994, and to have begun interventions in all the newly-identified endemic villages by the middle of March. Funding for the searches and interventions is being provided by UNICEF, which also made two vehicles available for the search and interventions. A third vehicle was made available by WHO.

**BURKINA FASO:
PRESIDENT COMPAORE TO OPEN 5TH AFRICAN CONFERENCE**



The Head of State of Burkina Faso, Captain Blaise Compaore, has accepted an invitation by the World Health Organization (WHO) to preside at the opening session of the Fifth African Regional Conference on Dracunculiasis Eradication, which will be held in Ouagadougou on 29-31 March 1994. The conference will be co-sponsored by the Government of Burkina Faso, WHO, the United Nations Children's Fund (UNICEF), Global 2000, and the WHO Collaborating Center for Training, Research, and Eradication of Dracunculiasis at the Centers for Disease Control and Prevention (CDC). Key topics will include summary country reports, review of plans of action for each country, and a presentation and discussion of case containment.

Announcement of the Burkinabe president's agreement to open the conference preceded a visit to Burkina Faso in December (17-22) by former Malian Head of State General Amadou Toumani Toure, president of the Intersectoral Committee for Eradication of Dracunculiasis in Mali. While in Burkina Faso, General Toure met with President Compaore, the minister of health, the national program coordinator (Dr. Sie Roger Hien), and others to discuss the eradication program. Support for General Toure's visit to Burkina Faso was provided by Global 2000.

**MALI:
NATIONAL CONFERENCE, ABATE COURSE SET FOR JANUARY**



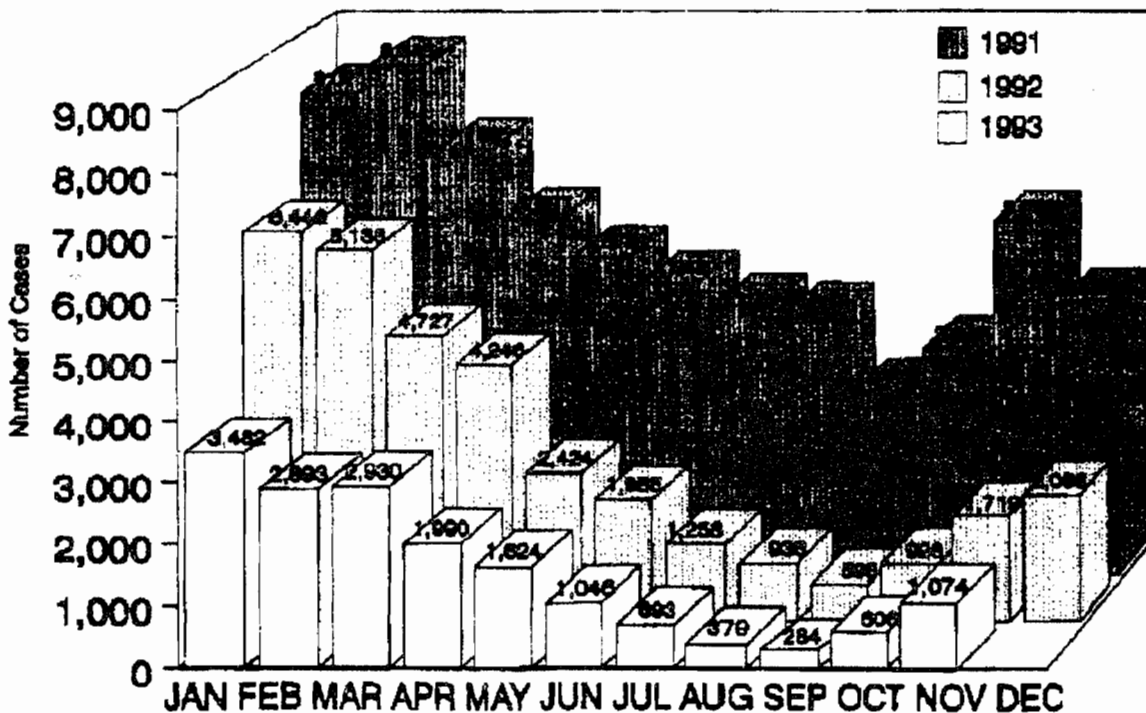
The President of the Intersectoral Committee, General A. T. Toure, the National Program Coordinator of Mali, Dr. Issa Degoga, and their colleagues convened the second national conference on dracunculiasis eradication in Mali on 3-7 January 1994. Members of the National Assembly, USAID, UNICEF, WHO, CARE, Peace Corps, and Global 2000 attended the opening session. This was

followed by a course on the use of Abate on 12-14 January. The Abate course was conducted by Dr. Alhousseini Maiga of ITECH and Mr. M. Salissou Kane of WHO/Niger, and included participants from Benin, Burkina Faso, Chad, Cote d'Ivoire, Mauritania, and Senegal, as well as Mali. By the end of November, the Mali program had at least one other intervention in place in 74% of its known endemic villages, in addition to a trained village-based health worker in 87% of endemic villages (Figures 1, 2). External assistance to this program is provided by Global 2000, USAID, UNICEF and U.S. Peace Corps.

GHANA:
46% REDUCTION OF CASES IN 1993 VS 1992

With a total of 17,001 cases reported from 2,125 endemic villages in January through November 1993, Ghana has achieved a 46% reduction in cases vs. the same period of 1992 (Figure 4, Table 1). Only 284 cases were reported for the entire country in September 1993, the lowest monthly total since the program began active monthly surveillance in 1990. The percentage of endemic villages reporting on time each month continues to exceed 95%. With a projected total of about 18,000 cases for all of 1993, Ghana will have reduced its annual total of cases by 90% since 179,556 cases were reported in 1989. The National Program Coordinator, Dr. Sam Bugri, has designated a new regional coordinator for Guinea worm eradication (Dr. S. Anemana) for the Northern Region, which now has 68% of the remaining cases in the country. Case containment is now being implemented nationwide, including use of 9 case containment trainers in the Northern Region alone.

Figure 4 **GHANA GUINEA WORM ERADICATION PROGRAM**
NUMBER OF CASES OF DRACUNCULIASIS REPORTED BY MONTH



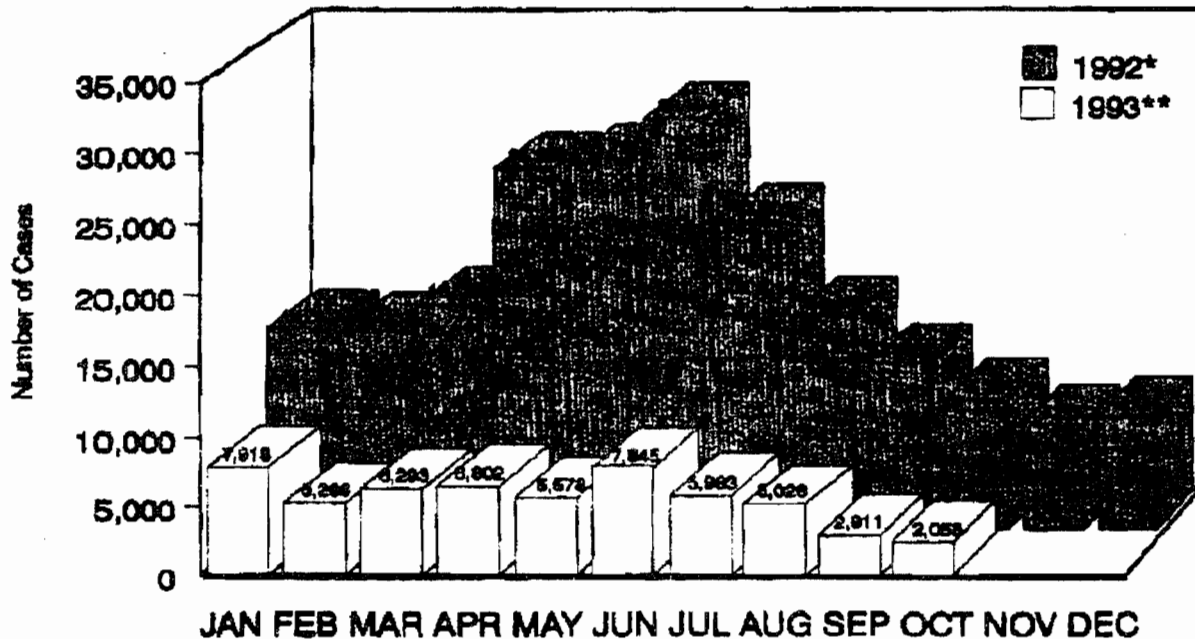
**NIGERIA:
70% REDUCTION IN CASES IN 1993 VS. 1992**



Nigeria reports a total of 55,684 cases of dracunculiasis from January through October 1993, a reduction of 70% from the same period of 1992 (Figure 5, Table 1). About 67% of 6,317 "endemic villages" reported in both years, but only 4,593 villages are known to have had 1 or more cases since January 1992. The projected total of about 65,000 cases for all of 1993 represents a reduction in cases of 90% from the 640,008 cases that were reported in 1989. The UNICEF Mission to Nigeria expects to deploy several new drilling rigs early in 1994, with a minimum of 100 boreholes from each rig per year, giving priority to highly endemic areas of the country. One hundred communities each in Kano and Katsina States are also slated to receive new water supply sources under a cooperative program with the United Nations Development Program (UNDP), with first priority for villages where dracunculiasis is endemic. UNICEF is also providing extensive support for training, evaluation, and health education activities in the Nigerian program. By December 1993, Abate was being used in parts of 401 villages in 10 states. On November 16-17, Dr. Karl Kappus of CDC conducted a workshop on case containment strategy for Guinea worm coordinators from five states at Jos, in Plateau State.

Figure 5

Figure 5
**NIGERIA GUINEA WORM ERADICATION PROGRAM
NUMBER OF CASES OF DRACUNCULIASIS REPORTED BY MONTH**



* 73% of endemic villages reported on time.
** 67% of endemic villages reported on time.

**UGANDA:
INTENSIFICATION OF INTERVENTIONS; MORE ASSISTANCE**



A total of 39,752 cases of dracunculiasis have been reported from January through October 1993, with approximately 70% of 2677 endemic villages reporting (Table 1). New surveillance booklets for village volunteers have been distributed in Kitgum, Moroto, Gulu, Kotido, and Arua Districts. Re-training of village volunteers was conducted in Kitgum District in September, in Bokara Zone of Moroto District in October, and in Kotido District in November. External assistance for the re-training was provided by UNICEF, AVSI, CUAMM, Lutheran World Federation, and Global 2000. Workshop sessions for sensitizing school teachers, other non-health staff and/or political leaders were also held in Moroto and Kotido. Three health education posters developed with the assistance of UNICEF/Uganda have been printed and are expected to be distributed in the five most endemic districts beginning in January. The training course for use of Abate has been re-scheduled for January 23-25. It will be led by Dr. Ernesto Ruiz-Tiben of Global 2000 and Dr. Karl Kappus of CDC, and will also include participants from Ethiopia, Kenya, and Sudan. A course in case containment strategy is also being planned for Ugandan health workers later the same week.

In December, the Ministry of Foreign Affairs of Japan announced a "small-scale grant" for the Guinea worm eradication activities being administered in Kitgum District by the International Service Volunteers Association (AVSI) of Italy. The grant is for US\$27,378, including purchase of a vehicle. In November, Uganda's Guinea Worm Eradication Program received an award of US\$17,000 for purchase of T-shirts and other incentives for village health workers. The latter award was donated through Dr. Anders Seim of Health and Development International (HDI), and was the second grant obtained for the Ugandan program by HDI in 1993.

**CAMEROON:
END OF YEAR REVIEW**



At the invitation of the National Program Coordinator, Dr. Amos Sam-Abbenyi, three external experts conducted an end-of-year in-country evaluation of the Guinea Worm Eradication Program of Cameroon. Drs. Karl Kappus (CDC), Alhousseini Maiga (ITECH/WHO), and Philippe Ranque (WHO), visited 17 endemic villages in Cameroon in December. A total of 71 cases were reported for Cameroon for 1993 in 19 endemic villages, including 39 cases from only two of the villages. This represents a reduction of 44% from the 127 cases reported in Cameroon in 1992, at a stage of that program when the annual rate of reduction of cases should be much greater. Specific recommendations were made to the Cameroonian program for improving its surveillance and case containment practices.

IN BRIEF:

Kenya began its village-by-village search for cases in northern Turkana District in December. The search, which is being conducted in cooperation with the non-governmental organization AMREF

and with support provided by UNICEF, found nine active cases among a total of 23 cases that occurred in 1993 in 2,214 households in that area. The next areas scheduled to be searched are southern Turkana, and Trans-Nzoia District.

Niger appointed a new National Program Coordinator, Mr. Sadi Moussa, a sanitary engineer, on October 20, after the previous NPC, Mr. M.S. Kane, assumed a new position with WHO/Niger. A new National Committee for the Eradication of Guinea Worm was created the following week. Training of village-based health workers has begun, with a total of 221 endemic villages covered so far.

Pakistan found a second case of dracunculiasis, also in the village of Ganju, North West Frontier Province. The patient, an 18-year old girl, had a worm to emerge on 6 October, but was concealed until 17 October because her father did not want her to be hospitalized. The remainder of the worm was extracted surgically, and all other containment measures taken.

India reports 748 cases in 182 endemic villages for 1993.

WHITE HOUSE AWARD



Former CDC deputy director Dr. Donald Hopkins was one of six Americans who received Certificates of Commendation from U.S. President and Mrs. Bill Clinton during a ceremony at the White House on December 21, 1993. The ceremony was held to launch UNICEF's 1994 State of the World's Children Report, which was presented to President Clinton by UNICEF executive director Mr. James Grant. Hopkins was honored for "his leadership in the global effort to eradicate smallpox and dracunculiasis, . . . which has helped assure safe water and improve sanitation in areas where dracunculiasis is endemic". Former CDC director Dr. William Foege was also one of the honorees. Hopkins and Foege both now work for the Carter Presidential Center.

CASE CONTAINMENT COMPARED TO OTHER ERADICATION STRATEGIES FOR DRACUNCULIASIS

As more and more endemic countries enter the final stages of their Guinea Worm Eradication Programs and begin implementing the intensive "case containment" strategy, it is important to consider how the latter strategy differs from the eradication strategy employed at earlier stages of national programs. A summary comparison is outlined below. The most important difference between the two stages of eradication programs is the need to respond to each report of a case as an urgent medical emergency during case containment, in order to achieve the greater effectiveness of control measures which are required at that stage. The greater human and material resources needed to thoroughly "contain" each case in the latter stage are the main reasons why such intensive measures usually cannot be implemented until the number of cases is relatively small, whether at a particular time (e.g., September 1993 in Ghana) and/or place (e.g., Cameroon; or Koulikoro Region of Mali). Administrators must understand and planners must anticipate the greater rigor and costs per patient that are inherent in the case containment strategy.

Two cardinal requirements for case containment in populations at risk of dracunculiasis:

- Each new case in the population must be detected before or within 24 hours of emergence of the worm, and
- Every case must be fully contained by measures to prevent transmission of the infection before there is an opportunity to infect other persons.

An undetected case cannot be contained. Each new worm emergence risks the possibility of new infections a year later. Since even one episode of transmission may extend the time needed for eradication by one year, detection and containment of cases must be consistently effective. In addition to detecting each case within 24 hours of emergence of the worm, initial containment measures must be begun within 24 hours of detection of the worm, and supervisory staff must confirm occurrence of the case and the completion of all appropriate containment measures within 7 days of emergence of the worm.

Cash rewards can greatly strengthen case detection, and compliance with containment measures, but they will not be effective unless they are widely advertised and understood. If surgical extraction is offered as a part of case containment, trained and well supervised technicians should be employed so that patients will have access to a safe extraction procedure, without charge, before or within 24 hours of emergence of the worm, and the procedure should be monitored carefully to help assure safety and prevent abuses.

The consequences of failing to detect and contain each case of this disease with an incubation period of one year were illustrated in Cameroon and Pakistan in 1993. In Cameroon, a single case that was undetected by the program during the emergence of the worm in 1992 caused an outbreak of 23 cases in the previously unendemic village of Kangeri in 1993. In the well known endemic village of Ganju in Pakistan in 1992, inadequate containment measures 1) permitted a patient to contaminate a source of drinking water in the village, 2) failed to treat that water source adequately with Abate, and 3) allowed other villagers to drink unfiltered water from the contaminated source. The result was two cases of disease in 1993, which delayed the date for Pakistan to reach eradication for at least one year.

Regular monitoring and timely supervision of case containment activities by responsible personnel at village, regional and national levels are critical. Use of appropriate forms is a powerful managerial tool to insure this. Examples of two forms, one for use at village level and the other for use at district or regional and national levels are reproduced here (see Figures 6 and 7). These or some other appropriate forms should be adapted for use in each endemic country. The principle of including only the minimal necessary information that will be used, should be respected.

A final key element of case containment is that all imported or suspected imported cases should be cross-notified to the suspected source country immediately, with appropriate identifying information, through the office of the WHO Representative.

Case ID. No.

**CASE CONTAINMENT SAMPLE FORM (CCF-1)
GUINEAMORN CASE REPORT**

Region District

Zone Village

Patient name Age Sex

Name of head of household

Date worm emerged (d/m/y)

Date when worm seen by village volunteer/health worker (d/m/y)

Date case reported to supervisor (d/m/y)

Date when worm and containment confirmed by supervisor (d/m/y)

Has case entered any water source with emerged worm (y,n,unknown) ?.....

If yes, was it in this village (y,n) ?..... if other village(s), name

Did patient live or travel outside this village about one year before emergence of worm (y,n,unknown)?.....

If case was imported, name the probable source.

(country,district,village)

Give dates (day/month/year) or "none" for each of the measures below		
patient/family advised to keep patient away from sources of drinking water		
first controlled immersion	medical extraction begun	most recent Abate application
village chief advised that case is present	last health education talk or demonstration given to village	

Name of supervisor who confirmed presence of worm/containment

Name of person completing form

Signature Date

CASE CONTAINMENT SAMPLE FORM (CCF-2)

Region
 District
 Zone

District status of case containment and control; monthly listing of cases¹

Case number	Village	Age/ Sex (m, f)	Date				If imported: probable source of infection ⁴	Status of control measures		
			Of worm emergence	Worm seen by village volunteer	Reported to/confirmed by supervisor ²	Least community health education		Extraction/immersion/bandaging process ³	Date filters distributed to every household ⁵	Date of Abate ⁶

- Notes - District status of case containment and control; monthly listing of cases [Regional equivalent, CCF-3 is similar]**
- This form will be completed monthly by the zonal and district coordinator(s) to list new cases and update cases (indicate these cases with * at the left margin) with incomplete information from previous months. Information for most columns will usually be taken from the case report form filled in by the village worker or the zonal coordinator. Information for the remaining columns will be added by the zonal and district coordinators.
 - "Reported to/confirmed by supervisor" column; enter the date when the case was reported to the first supervisor and the first date that a zonal or district coordinator made an on-site visit and verified the case occurrence and containment measures.
 - "Extraction/ Immersion/ bandaging process" column; enter N (none) or date(s) for either I (controlled immersion) or E (medical extraction) or B (occlusive bandaging) then either "c" for completed, "n" for incomplete or unsuccessful, "p" for still in progress.
 - "Imported" column; indicate only for those cases thought to be imported; list village/district/country where the patient was infected, if known.
 - "Date when full filters distributed" column; indicate when all households in the case's village have been given filters.
 - "Date of Abate" column; indicate the most recent application for the village.
 - "Safe water status" column; indicate if a borehole or some other water source that is safe from Guineaworm is working in the village.

Early Eradication Strategy
(many cases & affected villages)

Focus on affected families, villages

Need to detect endemic villages

Medical care for individuals
often not possible

Use Abate selectively, after other
interventions, for main water sources

Monitor implementation of overall
activities and changes in incidence

Case Containment Strategy
(few cases in few villages)

Focus on each patient
(interview to learn source and potentially
contaminated sites, educate)

Need to detect each case, as quickly as possible;
confirm all case reports, follow-up all rumors

Case management important
(controlled immersion, occlusive bandaging, or
surgical extraction)

Identify, treat all appropriate water sources with
Abate

Use special forms to track detection and control of
each case and affected village, at local, district, and
national levels

MEETINGS

At the Joint Annual Meeting of the American Society of Tropical Medicine and Hygiene and the American Society of Parasitologists in Atlanta in November, special commendations were made to representatives of American Cyanamid Company, the Carter Center, DuPont Corporation, and Precision Fabrics Group for their roles in the campaign to eradicate dracunculiasis. The President of the American Society of Tropical Medicine and Hygiene, Dr. Daniel G. Colley, made special reference in his presidential address to the achievements of Ghana's Guinea Worm Eradication Program. A poster presentation was also displayed during the meeting on behalf of Dr. Sam Bugri, National Program Coordinator of Ghana's GWEP.

The 1993 Program Review for Chad, Mali, Mauritania, Niger, and Senegal was held in Ouagadougou, Burkina Faso from 29 November to 3 December 1993. Hosts for the meeting, which was held at the headquarters of the regional Onchocerciasis Control Program (OCP), were Drs. Alhousseini Maiga of ITECH/WHO and Ibrahim Samba, the director of the OCP. (The Proceedings of the two previous 1993 Program Reviews held at Addis Ababa in September and Abidjan in October are available in English and French from Global 2000. The report of the Review at Ouagadougou will also be available shortly.)

The XXIV Meeting of the Interagency Coordinating Group for Dracunculiasis Eradication was hosted by Dr. Trenton Ruebush, director of the Collaborating Center of CDC, in Washington on December 6. He was joined for most of the meeting by CDC assistant directors Dr. Gary Noble and Dr. Joe Davis. Attending for the first time was a representative of the African Regional Office of WHO, Dr. D. Barakamfitiye. Also represented were Global 2000, Global Water (Dr. Peter Bourne), ITECH West Africa (Dr. Sandy Cairncross), ITECH East Africa (Dr. Ivorlumun Uhaa), Peace Corps,

UNICEF, and WHO headquarters. Representatives of World Bank, UNDP, World Vision, and HDI were unable to attend.

1994 NATIONAL GUINEA WORM DAY IN FRANCOPHONE COUNTRIES

The OCCGE and WHO have recommended that endemic French-speaking countries hold their common National Guinea Worm Eradication Day this year on Friday, April 22, 1994. This change (from April 30 in 1992 and 1993) is made in order to facilitate participation of the respective ministers of health in the associated activities before the ministers leave to attend the 1994 World Health Assembly, which will begin in Geneva on May 2nd.

RECENT PUBLICATIONS



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CDC, 1993. Recommendations of the International Task Force for Disease Eradication. *MMWR*, 42(No. RR-16):1-55.

Hopkins DR, 1994. Disease Eradication. In: *Medical and Health Annual*, Ellen Bernstein, ed. Chicago: Encyclopedia Britannica, pp 282-287.

WHO, 1993. Criteria for the certification of dracunculiasis eradication. Division of Control of Topical Diseases. WHO/FIL/93.187.

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Inclusion of information in Guinea Worm Wrap-Up does not constitute "publication" of that information.

For information about the GW Wrap-Up, contact Virginia G. Sturwold, EdD, writer-editor, CDC/HPO, F-03, 1600 Clifton Rd., NE, Atlanta, GA 30333, U.S.A. FAX: (404) 639-0277.



CDC is the WHO Collaborating Center for Research, Training, and Eradication of Dracunculiasis.